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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/786,003	02/26/2004	Ahmed E. Hassan	42783-0038	3544

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EXAMINER	
ZHOU, YONG	
ART UNIT	**PAPER NUMBER**
2619	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/786,003	HASSAN ET AL.	
	Examiner	Art Unit	
	Yong Zhou	2619	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 May 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12,14,15 and 17-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12, 14-15, 17-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-12, 14, 15, 17-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tourunen et al. (US Patent Application No. 2001/0043579) in view of 3GPP Technical Specification 04-65 v8.2.0 (referred to as "3GPP 04-65-820" hereinafter).

Regarding claim 1, Tourunen et al. teach in a communications system (Abstract, line 1) having a group of interface devices configured with the same functionality for assembling messages transmitted as sequences of data packets from within a coverage area of a wireless communications network (Fig. 1, Fig. 2, wherein the BTS/BSC, RNC, SGSN in the GPRS/UMTS network are logical entities equivalent to the claimed interface devices and they are configured with the same functionality, such as the Gb or Iu interface functionality so BSC or RNC can communicate with the SGSN; in fact, some of these logical entities can be co-located or combined into one

physical entity in the centralized architecture), a method for assembling a message from a sequence of data packets, including:

receiving at one interface device of the group of interface devices from the wireless communications network at least one data packet of a sequence of data packets ([0019], lines 16-19, wherein the SGSN receives packets sent from mobile stations) that collectively form a message (Fig. 3a, [0003], lines 14-17, and [0024], lines 4-6, wherein the network layer PDU (N-PDU) is segmented by the convergence layer SDNCP at the transmitter side (MS or SGSN) to one or more data packets (SN-PDUs), and these data packets would need to be re-assembled at the receiving SNDCP entity to form an N-PDU for reporting to the higher layer); and

determining if the at least one data packet meets a predetermined criteria (Fig. 4, [0003], lines 14-17, and [0027], lines 3-6, wherein during the handover, upon receiving from the new SGSN an SGSN Context Ack message #414 informing the old SGSN of the new SGSN being ready to receive data packets of the activated PDP contexts, the old SGSN check the data packets and their association with the N-PDU number and on the basis of this examination, missing packets can be identified), sending out a request to the other interface devices of the group for any data packets of the sequence received by the other interface devices and receiving at the one interface device any data packets sent by the other interface devices in response to the request (Fig. 4, and [0027], lines 3-10, triggered by the new SGSN (SGSN Context Ack message #414), the old SGSN transmits an SRNS Context Ack message 416a to the Serving RNS (SRNS)

to request for the data packets received and stored in SRNS to be forwarded to the old SGSN (#416b));

assembling the data packets of the sequence into the message at the one interface device ([0024], lines 17-20, and [0027], lines 8-11, wherein the old SGSN receives the missing data packets from the SRNS and assembles them before forwarding to the new SGSN via the GTP tunnel).

Tourunen et al. do not specifically teach that the predetermined criteria is based on the location of the at least one data packet within the sequence of data packets.

3GPP 04-65-820 teaches that the Receive N-PDU number parameter indicates the next Receive N-PDU number in the SGSN expected to be reported to the upper network layer through the Network Service Access Point identified by an NSAP Identifier (p8, Sec 3.1, line 12, and p17, Sec 5.1.2.26, lines 2-3). 3GPP 04-65-820 further teaches that the F bit and M bit in the SNDCP header indicate the first and last segment of the N-PDU, respectively (p32, Sec 6.7.1.1, lines 3 and 11). Therefore, based on this F/M bit together with the Receive N-PDU number, the old SGSN can identify if there are missing data packets associated with the N-PDU and if they should be recovered from the SRNS.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Tourunen et al. invention to include the Receive N-PDU number in the PDP context and F/M bit in the SNDCP header for indicating the first/last segment as taught by 3GPP 04-65-820 to ensure reliable (acknowledged) data transmission and N-PDU re-assembly.

Regarding claim 2, Tourunen et al. and 3GPP 04-65-820 teach all limitations of claim 1.

Tourunen et al. and 3GPP 04-65-820 as applied to claim 1 do not specific teach that prior to sending out the request, determining if the one interface device has received all the data packets of the sequence, wherein the request to the other interface devices is sent out only if a determination is made that the one interface device has not received all the data packets of the sequence.

3GPP 04-65-820 further teaches that prior to sending out the request, determining if the one interface device has received all the data packets of the sequence, wherein the request to the other interface devices is sent out only if a determination is made that the one interface device has not received all the data packets of the sequence (p8, Sec 3.1, line 12, p17, Sec 5.1.2.26, lines 2-3, and p32, Sec 6.7.1.1, lines 3 and 11, wherein the Receive N-PDU number parameter indicates the next Receive N-PDU number in the SGSN expected to be reported to the upper network layer; the F bit=1 in the SNDCP header indicates the first segment and M bit = 0 indicates the last segment. Therefore, based on this F/M bit together with the Receive N-PDU number, the old SGSN can identify if it has received all the data packets associated with the N-PDU).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the Tourunen et al. and 3GPP 04-65-820 invention to include the F and M bits in the SNDCP header for identifying all

received segments associated with an N-PDU as taught by 3GPP 04-65-820 to ensure reliable (acknowledged) data transmission and N-PDU re-assembly.

Regarding claim 3, Tourunen et al. and 3GPP 04-65-820 teach all limitations of claim 2.

Tourunen et al. and 3GPP 04-65-820 as applied to claim 2 do not specific teach that the predetermined criteria is that the at least one data packet is the final data packet in the sequence.

3GPP 04-65-820 further teaches that the predetermined criteria is that the at least one data packet is the final data packet in the sequence (p42, Fig. 18, M bit, wherein M=0 indicates the last segment of N-PDU).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the procedure of Tourunen et al. and 3GPP 04-65-820 to include the final data packet determination as taught by 3GPP 04-65-820 to achieve predictable results of reliable data transmission.

Regarding claim 4, Tourunen et al. further teach that the group of interface devices are distributed computers connected by a wired network across which the request is sent (Fig. 1 and Fig, 2, wherein the SGSN/GGSN and BSC/RNC are distributed computers and interconnected via Gn, Gb and Iu interfaces across the wired network; only the interface between network (BTS/BS) and MS/UE is wireless).

Regarding claim 5, Tourunen et al. further teach that the request includes an interface device identifier (SGSN address, [0020], line 12) identifying the one interface

device and a sequence identifier identifying the sequence (N-PDU number, [0003], lines 14-17).

Regarding claim 6, Tourunen et al. and 3GPP 04-65-820 teach all limitations of claim 1.

Tourunen et al. and 3GPP 04-65-820 as applied to claim 1 do not specific teach that each data packet of the sequence includes information associating the data packet with the message and information indicating a location of the data packet within the sequence, wherein the criteria is based on a location of the at least one data packet within the sequence.

3GPP 04-65-820 further teaches that the F bit=1 in the SNDCP header indicates the first segment of the N-PDU and M bit = 0 indicates the last segment (p32, Sec 6.7.1.1, lines 3 and 11).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the procedure of Tourunen et al. and 3GPP 04-65-820 to include the F/M bit in the SNDCP header to indicate the location of the data segment of the N-PDU as taught by 3GPP 04-65-820 to achieve predictable results of reliable data transmission and N-PDU re-assembly.

Regarding claim 7, Tourunen et al. further teach monitoring at the other interface devices of the group for the request and in reply thereto sending to the one interface device any data packets for the sequence received at the other interface devices ([0027], lines 8-9, wherein the SRNS transmits the buffered data packets to the old SGSN upon receiving the request from the old SGSN).

Regarding claim 8, Tourunen et al. further teach monitoring at the one interface device for a request from any of the other interface devices of the group for data packets of a requested sequence, and sending any data packets of the requested sequence received by the one interface device to a requesting one of the other interface devices of the group ([0027], lines 8-9, wherein the old SRNS transmits the buffered data packets to the old SGSN upon receiving the request from the old SGSN).

Regarding claim 9, Tourunen et al. further teach that the coverage area is a substantially continuous geographic area (Fig. 1, BTS, and [0026], line 5, wherein each BTS serves a GPRS cell).

Regarding claim 10, Tourunen et al. further teach that the coverage area includes a plurality of geographically dispersed areas (Fig. 1, BTSs, BSC, and [0018], lines 4-6, wherein each BSC is connected with multiple BTSs covering multiple cells).

Regarding claim 11, Tourunen et al. teach

an interface device comprising a group of interface devices (Fig. 1, Fig. 2, BTS/BSC, RNS, SGSN/GGSN) for receiving messages transmitted as sequences of data packets from within a coverage area of a wireless communications network, the group of interface devices being coupled to a gateway network for communicating there between, each of the interface devices in the group of interface devices configured with the same functionality (Fig. 1, Fig. 2, wherein the BTS/BSC, RNC, SGSN in the GPRS/UMTS network are logical entities equivalent to the claimed interface devices and they are configured with the same functionality, such as the Gb or Iu interface functionality so BSC or RNC can communicate with the SGSN), the interface device

including a message assembler for determining if the interface device should assemble a message for a sequence of data packets of which the interface device has received at least one data packet (Fig. 4, [0003], lines 14-17, and [0027], lines 3-6, wherein during the handover, upon receiving from the new SGSN an SGSN Context Ack message #414 informing the old SGSN of the new SGSN being ready to receive data packets of the activated PDP contexts, the old SGSN check the data packets and their association with the N-PDU number and on the basis of this examination, missing packets can be identified), sending out a request for any missing data packets to the other interface devices of the group over the gateway network (Fig. 4, and [0027], lines 3-10, triggered by the new SGSN (SGSN Context Ack message #414), the old SGSN transmits an SRNS Context Ack message 416a to the Serving RNS (SRNS) to request for the data packets received and stored in SRNS to be forwarded to the old SGSN (#416b)) and

assembling the message upon receiving the missing data packets ([0024], lines 17-20, and [0027], lines 8-11, wherein the old SGSN receives the missing data packets from the SRNS and assembles them before forwarding to the new SGSN via the GTP tunnel).

Tourunen et al. do not specifically teach that the predetermined criteria is based on the location of the at least one data packet within the sequence of data packets.

3GPP 04-65-820 teaches that the Receive N-PDU number parameter indicates the next Receive N-PDU number in the SGSN expected to be reported to the upper network layer through the Network Service Access Point identified by an NSAP Identifier (p8, Sec 3.1, line 12, and p17, Sec 5.1.2.26, lines 2-3). 3GPP 04-65-820

further teaches that the F bit and M bit in the SNDCP header indicate the first and last segment of the N-PDU, respectively (p32, Sec 6.7.1.1, lines 3 and 11). Therefore, based on this F/M bit together with the Receive N-PDU number, the old SGSN can identify if there are missing data packets associated with the N-PDU and if they should be recovered from the SRNS.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Tourunen et al. invention to include the Receive N-PDU number in the PDP context and F/M bit in the SNDCP header for indicating the first/last segment as taught by 3GPP 04-65-820 to ensure reliable (acknowledged) data transmission and N-PDU re-assembly.

Regarding claim 12, Tourunen et al. further teach that each data packet sent over the wireless network is directed to the interface device (Fig. 1, MS and BTS, wherein the data packets received over the wireless network from the MS to the BTS are directed to the BSC and the SGSN/GGSN).

Regarding claim 14, Tourunen et al. and 3GPP 04-65-820 teach all limitations of claim 11.

Tourunen et al. and 3GPP 04-65-820 as applied to claim 11 do not specific teach that the predetermined location is a last location in the sequence of data packets.

3GPP 04-65-820 further teaches that the predetermined location is a last location in the sequence of data packets (p42, Fig. 18, M bit = 0 in the SN-PDU header (at SNDCP layer) for last segment of N-PDU).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the procedure of Tourunen et al. and 3GPP 04-65-820 to include the last location indication as taught by 3GPP 04-65-820 to achieve predictable results of reliable data transmission and N-PDU re-assembly.

Regarding claim 15, Tourunen et al. further teach that the message assembler of the interface device monitors for a request for missing data packets of a sequence from other interface devices in the group and upon receipt thereof sends over the gateway network to the requesting interface device any missing data packets of the sequence that have been received thereby ([0027], lines 8-11, wherein the old SRNS transmits the buffered data packets to the old SGSN upon receiving the request from the old SGSN, then the old SGSN will forward them to the new SGSN).

Regarding claim 17, Tourunen et al. further teach that the interface device and the other interface devices have a respective dedicated communications channel on the gateway network for communicating requests for missing packets (Fig. 1 and Fig. 2, [0024], lines 17-20, wherein the BSS/RNS and SGSNs all have dedicated communications channel for communicating user data and signaling information).

Regarding claim 18, Tourunen et al. further teach a wireless network adaptor associated with the interface device for converting data packets received from the coverage area from a first protocol to a second protocol suitable for the interface device (Fig. 1, BTS, wherein the BTS converts the radio interface protocol to the protocol for communicating with the BSC over a landline).

Regarding claim 19, Tourunen et al. further teach that the coverage area is a substantially continuous geographic area (Fig. 1, BTS, and [0026], line 5, wherein BTS serves a GPRS cell).

Regarding claim 20, Tourunen et al. further teach that the coverage area includes a plurality of geographically dispersed areas (Fig. 1, BTSs, BSC, and [0018], lines 4-6, wherein each BSC is connected with multiple BTSs covering multiple cells).

Regarding claim 21, Tourunen et al. and 3GPP 04-65-820 teach a communication system (Abstract, line 1) comprising a gateway and a group of interface devices configured with the same functionality including the interface device according to claim 11. Claim 21 contains all limitations of claim 11. Therefore, it is rejected for the same reasons.

Regarding claim 22, Tourunen et al. further teaches the each interface in the group of interface devices operates in the same network layer (Fig. 3a, Gb, Fig. 3b, Iu, wherein the BSC (BSS) or RNC (RNS) operates in the same network layer as the SGSN regarding the Gb or Iu interface).

Response to Arguments

3. Applicant's arguments, filed May 23, 2008 have been fully considered but they are not persuasive.

On the page 7 of the Applicant's Response, Applicant argues that the SGSN and SRNS disclosed in reference Tourunen "would not be considered to be configured with the "same functionality" as required in the amended claims". In response, the Examiner

respectively disagrees with Applicant's arguments. The BSC (BSS), RNC (RNS), and SGSN in the GPRS/UMTS network are configured with the same functionality, such as the Gb or Iu interface functionality so BSC or RNC can communicate with the SGSN (see Tourunen, Fig. 3a, Fig. 3b).

Therefore, in view of the above reasons, the Examiner maintains the rejections.

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yong Zhou whose telephone number is (571)270-3451. The examiner can normally be reached on Monday - Friday 8:00am - 5:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chirag G. Shah can be reached on (571) 272-3144. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Yong Zhou

July 2, 2008

/Chirag G Shah/
Supervisory Patent Examiner, Art Unit 2619